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# AGRICULTURAL EDUCATION MONTHLY.

U. S. DEPARTMENT OF AGRICULTURE,  
STATES RELATIONS SERVICE.

AGRICULTURAL INSTRUCTION DIVISION.

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## POULTRY MANAGEMENT.

### SUGGESTIONS FOR TEACHING THE SUBJECT IN SECONDARY SCHOOLS.

#### INTRODUCTION.

Instructors in agriculture throughout the United States are awakening to an appreciation of the value of poultry in connection with their teaching. Poultry fits in well with the home-project plan, as there are few boys and girls, whether in the village or on a farm, who can not keep a few fowls at home. Around a poultry project many lessons may be centered relating to care in the use of money, skill in the use of tools, and a constant application of effort which means much in moral development. Many important principles which underlie the feeding and the breeding of poultry and their protection from disease may be applied to the care and management of larger animals.

It should be the aim of the instructor to arouse such interest in the classroom that the students will be eager to take hold of a flock of poultry on their own account. To accomplish this purpose good illustrative material should be used and the classroom instruction centered around the practical work as far as possible.

At this time the management of matured fowls is emphasized, the hatching and rearing of chicks having been treated in a former number of this Monthly.<sup>1</sup> The marketing of poultry and their products will be reserved for a future paper.

#### RELATION OF SUBJECT TO COURSE OF STUDY.

*Relation to courses in agriculture.*—Poultry husbandry should be made a part of the general or elementary course in agriculture. In such a course the fundamental principles of feeding and breeding animals may well be brought out in their application to poultry. Where agriculture is divided into separate courses the study of poultry usually becomes a part of the course in animal husbandry. The amount of time given the subject in either of the courses named will depend on the total time available and the importance of poultry in relation to other subjects, ranging from two or three lessons to two or three weeks. In many special agricultural schools and departments of secondary grade special courses in poultry husbandry are now offered and in some cases special instructors of poultry husbandry employed. The suggestions given may not be all carried out in the briefer general courses while they will doubtless be amplified and added upon for the special courses offered.

*Adaptations.*—It is not only necessary to adapt the lessons given to the time and equipment available for teaching but also to the needs of the particular students a teacher may have and the community in which they live. With fairly matured students in a district in which poultry production has become a specialized industry the problems considered may be technical ones of a special nature while with younger students in a general farming community the lessons will necessarily be elementary and general with the arousing of interest as the chief aim. In all schools the work should be adapted to the individual needs and interests of the student as far

<sup>1</sup> Vol. I, No. 5, May, 1915.



as possible. This may be done by individual assignments and allowing for election in home projects and practicums.

*Correlations.*—Poultry husbandry affords an opportunity for the application and development of many of the principles of zoology and physiology. If these subjects are taught by other teachers to the students at the time they are getting instruction in poultry husbandry

there should be cooperation between the instructor in agriculture and the instructors in science. For example, in connection with the killing and dressing of poultry as a practicum in agriculture, there is an excellent opportunity for the classes in zoology and physiology to unite with the class in agriculture to learn something of the internal structure of the fowl. Such illustrations as shown in figure 1 will be found helpful in connection with this work. In case the class in agriculture is not getting practice in dressing fowls it may take advantage of any practice or demonstrations the classes in zoology and physiology may have in connection with a study of bird anatomy. If the principles of bird anatomy and physiology have been taken previously they should be briefly reviewed in their application to poultry. If the student has not had such courses it will be necessary for the teacher to dwell longer upon the underlying principles and thus pave the way for the science courses to come.

There should also be cooperation between the teacher of agriculture and teachers of the common academic branches. Papers on different phases of poultry husbandry should be accepted as themes by the teacher of English. In the working out of rations and the planning of poultry houses there is opportunity for the application of mathematics.

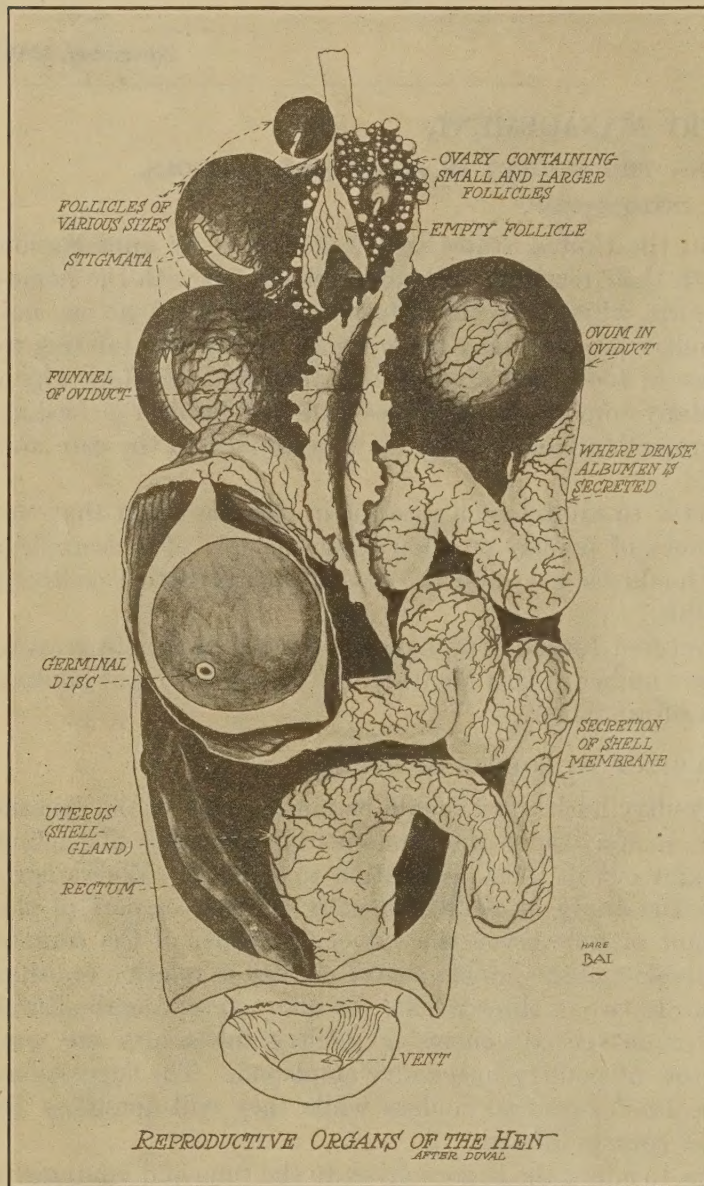


FIG. 1.—Chart for teaching how eggs develop.

Wherever there is a separate department of mechanic arts or a different teacher employed for farm mechanics there should be close cooperation in the teaching of these subjects and such a subject as poultry husbandry. The making of poultry houses and equipment should be done under the direction of both instructors.

#### CLASSROOM INSTRUCTION.

*Use of texts and bulletins.*—Recently a number of texts have been written especially for school instruction. For most secondary courses these should be used as references rather than



followed closely as texts. The Farmers' Bulletins of this department may be adapted to the courses given. Farmers' Bulletin 287, Poultry Management, may serve well as a basis for the classroom work. Each student should have a copy of this publication. It should be supplemented, however, with other Farmers' Bulletins and State publications. The project study outline will suggest topics for classroom discussion arranged in a logical order.

*Topics for special reports.*—Although the class as a whole may have time only to consider the management of poultry in a general way, there will be individual students who will be interested in special features of poultry management or to whom a special assignment may be made for the benefit of the class. Topics relating to special classes of poultry as ducks, geese, turkeys, pigeons, guineas, and pheasants may be thus assigned, or those relating to specialized practices, as producing day-old chicks, selection for egg production, selection for fancy points, caponizing, crate fattening, fitting for shows, and the treatment of special diseases. These topics may be made the basis for oral reports to the class or written reports to the teacher. They may also be made a part of a students' project study.

*Use of illustrative material.*—In studying types and breeds illustrations are very essential in establishing ideals, but wherever possible living specimens should also be used. For convenience such specimens may be brought into the classroom in such crates as are used for show purposes. Some of the poultry papers have excellent colored plates of fowls which are suitable for framing to hang upon the classroom walls. Other good illustrations should be clipped, mounted on cardboard, and filed in such a manner that they will be readily accessible for classroom use. A stereopticon with sets of slides to show methods and equipment as well as types and breeds will prove invaluable.<sup>1</sup> Many useful charts are also devised for classroom use. Figures 1, 2, and 3 should be suggestive of other such charts to be reproduced on cloth, paper, or the blackboard. Lantern slides may be obtained of these illustrations from this division. These illustrations may be projected on to chart-making material and traced as permanent charts.

A teacher visited recently had his students mount specimens of feathers from different parts of the body upon cards. This work was done in connection with a study of breeds and varieties. Such exhibits along with specimens of equipment, models of houses, and educational charts should form a permanent poultry exhibit.

Whenever well-equipped poultry plants are located near the school the teacher should take advantage of them with his class in a study of both fowls and equipment. Visits to such farms may take the form of practical demonstrations in which the students are shown such simple practice as setting a hen and the use of common disinfectants and the applications of material for the control of lice and mites.

#### PRACTICUMS.

*A poultry survey.*—If the teacher desires to use his class as a means of stimulating an interest in the community in better methods of poultry husbandry, it will be well to have the students assist him in making a survey of the poultry business of the school district in order that he may know better what is being done and what the needs of the community may be. Such a survey may be made general covering a census of the poultry on each farm, the purposes for which raised, and notes made upon any practice of special interest. More detailed special reports should be made by the students of the poultry on their home farms covering houses and equipment, methods of hatching, rearing, feeding, and marketing, with what is known of the expenditures and returns. Suggestive forms for such surveys will be found in United States Department of Agriculture Bulletin 464, Lessons on Poultry for Rural Schools.

<sup>1</sup> Sets of slides on breeds of poultry and the housing and handling of poultry are loaned free by this division.



*Judging poultry.*—Some practice judging should accompany a study of types and breeds. The extent to which the class goes into practice judging should depend upon the time available

and the importance in the community of breeding fowls according to the standard requirements. Outside of the American Standard of Perfection there is little published to serve as a guide to the student who is learning to judge poultry. If the instructor has not had experience as a poultry judge, he will be fortunate to secure the aid of such a judge in giving the class some practical pointers with the fowls at hand. Charts and pictures will be found very helpful in teaching the names of parts (figs. 2 and 3), in showing types of combs, markings of feathers, and in establishing ideals as to shape. Such study should be preliminary to the use of a score card. For convenience the fowls may be brought into the classroom in exhibition coops. In the limited time available only two or three of the leading local varieties should be judged. When the students become acquainted with the standard of perfection and the general methods of scoring they may, with further study and practice by themselves, become proficient in judging

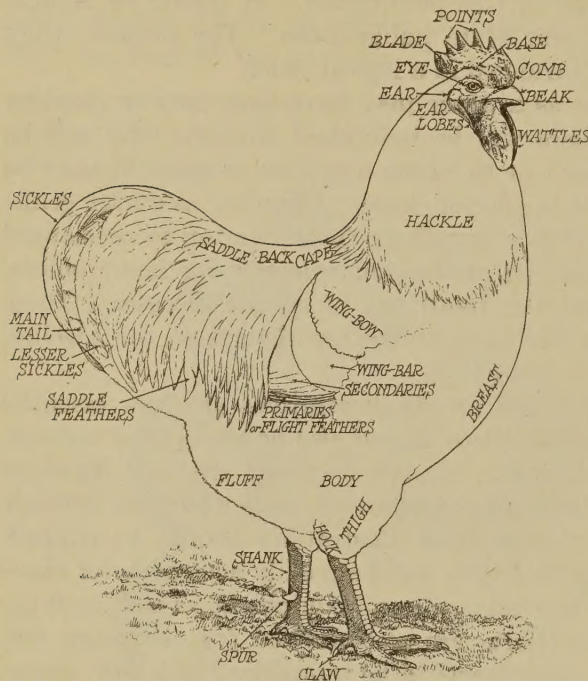


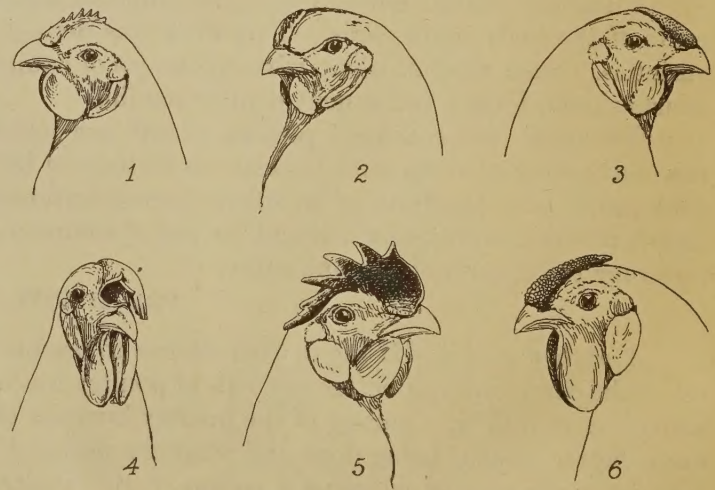
FIG. 2.—Chart for teaching names of parts of fowl.

other breeds and varieties. After sufficient practice with the score card to make them familiar with the points of a variety, and when an ideal of that variety is well established in their minds, the students should have some practice in comparative judging, i. e., in placing a number of individuals and pens of fowls according to merit.

*Caponizing.*—In sections where there is a profitable market for capons, the caponizing of fowls affords practice well worth the while of the class. The instructor should be proficient in the operation before he attempts to direct the work of the students. A demonstration by the instructor should precede practice by individual students. Directions for the work, with a list of the necessary instruments, will be found in Farmers' Bulletin 452, Capons and Caponizing.

*Making equipment.*—If the school does not have a shop or a place where simple equipment may be made as school practicums, credit should be given for such handicraft work when properly done at home. The following list should suggest

other exercises which may meet the needs of the students and community: Exhibition coops,



FEMALE HEADS SHOWING DIFFERENT TYPES OF COMBS

1 SINGLE  
4 SINGLE

2 PEA  
5 SINGLE

3 ROSE  
6 ROSE

FIG. 3.—Chart for teaching types of combs.



brood coops, common nests, trap nests, feed hoppers, and feed troughs. Such exercises are suitable for classes in mechanic arts and agriculture working together. Directions for making coops, nests, etc., will be found in Farmers' Bulletins 287, Poultry Management, and 682, A Simple Trap Nest for Poultry.

### PROJECTS.

*A school poultry plant.*—At a number of schools where poultry husbandry is taught successfully the students have built poultry houses and have cared for flocks of fowls at the school under the direction of their teachers. These poultry plants have been used for practice work in the various operations of poultry production, as a source of material for classroom instruction and as a means of applying principles learned in the classroom. From an educational point of view they have been the most successful when the students have done most of the work. Interest is not easily maintained if some one else is doing the work and assuming all responsibility. Two plans have been followed largely in the management of these plants with student labor. In some schools large houses have been built by the class and the labor and responsibility of caring for the flock divided among its members. The students receive credit according to the work done. In other schools each student has built a colony house and cared for a small flock on his own account as an individual project. In this case the student participates in either profits or losses, as with a home project. This plan is well adapted to schools where the students are boarding at the school and have no home project.

One of the chief difficulties in maintaining poultry at the school is in securing their proper care when school is not in session. If the instructor is not able to look after the flock during the summer, it is necessary to either sell out to begin anew in the fall or to secure the service of a caretaker. Some schools have given the care of the school flock to one of the students as a substitute for a home project. Plans for poultry houses will be found in Farmers' Bulletin 574, Poultry House Construction.

*A poultry exhibit.*—A real live poultry show in connection with the school work is to be recommended for a number of reasons. It affords an opportunity for the school to show the community what it is doing. It will aid in arousing interest among the school patrons and increase the interest of the students. An excellent opportunity is afforded for a study of breeds and for practice in judging. In planning the exhibit the instructor should keep in mind that it is for educational purposes. The more the students put into it the more they will get out of it. Each student should have something to exhibit, if it is only a nest box. If the students make the exhibition coops and do most of the work in arranging the exhibits, they will feel that it is their show. The exhibits of equipment as well as fowls should be suggestive of improvement for the poultry industry of the community. While an experienced man of the community or a professional judge from the outside may pass final judgment on the work of the students and their fowls which may be competing for prizes or honors, such an excellent opportunity for competitive judging among the students should not be neglected. It is usually not difficult to secure premiums in the shape of pure-bred fowls or settings of eggs to offer as prizes to the students. It may be advantageous for the school to cooperate with a local poultry club or some other concern in holding the show. Cooperation with the leader of the boys' and girls' poultry clubs is usually to the advantage of both school and club organization. If the exhibit can be held at the school, it will aid in giving it a school atmosphere and add to its value in arousing interest in school work.

*Home projects.*<sup>1</sup>—Poultry raising offers wide opportunities for home-project work. The field is so broad that although the work of the students is confined to common fowls it may be

<sup>1</sup> For an explanation of the home-project plan see U. S. Dept. Agr. Bul. 346, Home Projects in Secondary Courses in Agriculture.



restricted to a special project. The following are suggestive of phases of the work which may involve enough practice and study to be classed as projects: (1) Production projects—eggs for market, eggs for hatching, baby chicks, broilers, fryers, roasters, and breeders. (2) Improvement projects—building of houses and yards, improving a variety or strain by selection, improvement of a common farm flock. (3) Management projects—whenever the student may have the management of a poultry plant either of his own or for some one else in which considerable business is involved the work may be classed as a management project.

Few of the students will care to specialize at the start, neither will they have the capital or time to enter the business on an extensive scale. As the students of a class will have different aims and some of them a combination of aims, it is most convenient for the class to consider the subject from a general point of view. The following outline should aid either in a topical discussion of the subject in the classroom whether the students are carrying out home projects or not, or it may be adapted to individual students for a study outline in connection with their special projects:

### POULTRY MANAGEMENT STUDY OUTLINE.

#### CARE OF A POULTRY PLANT—A MANAGEMENT PROJECT.

- I. Shall I engage in the poultry business?
  1. What are the present possibilities in poultry and the production of their products?
  2. Do I like to work with poultry?
  3. Is this section suited to poultry raising?
  4. Is there a good market for poultry products?
  5. Is my home farm suited to poultry?
  6. Can I arrange to take hold of a flock of poultry on my own account?
- II. What shall be my aim in the poultry business?
  1. Shall I make a specialty of eggs for the market?
  2. Can I sell eggs for hatching?
  3. Shall I try to sell baby chicks?
  4. Shall I raise broilers, fryers, or roasters for the market?
  5. Can I raise fowls that will bring an increased price as breeders?
  6. Shall I aim to improve our home flock?
  7. Shall I make a combination of any or all of the aims above?
- III. What breed shall I select?
  1. Why should I choose pure-bred fowls instead of mongrels?
  2. What breed is best suited to my purpose?
  3. Shall I attempt to keep more than one breed or variety?
  4. What variety shall I select?
  5. Is there any particular strain of this variety which will be best suited to my purpose?
- IV. Where shall I locate my poultry plant?
  1. To what extent must I consider convenience in care and handling?
  2. Why must the elevation be given consideration?
  3. What kind of soil is best suited to a poultry plant?
  4. Why should the soil be fertile?
  5. Why should there be abundant sunshine?
- IV. Where shall I locate my poultry plant?—Contd.
  6. What about provisions for shade and protection from wind?
  7. How about security from different kinds of poultry thieves?
- V. What kind of housing shall I provide?
  1. What are the most important systems of housing?
  2. What will determine the kind of house to be used?
  3. What are the essential features of a house that will meet my conditions?
  4. Can I make a working plan of a house which will embody these features?
  5. Can I afford to build such a house?
  6. Can I build this house myself or will I have to hire it built?
- VI. What system of yarding shall I use?
  1. What conditions will determine the size of the yard?
  2. What provisions must be made for keeping the land in sanitary condition?
  3. What provisions shall I make for growing crops in the yards?
  4. What kind of fencing will serve my purpose best?
  5. What will determine the height of fence?
  6. What kind of gates shall I make?
- VII. How shall I start to build up a flock?
  1. Shall I use the home flock?
  2. Shall I secure eggs for hatching?
  3. Shall I secure baby chicks?
  4. Shall I secure a pen of matured breeding fowls or shall I use only pure-bred males?
  5. What are the advantages in starting with fowls of good breeding or with eggs from such fowls?



VIII. How shall I select and mate my fowls for best results?

1. Shall I breed for fancy points or for utility purposes?
2. Why is selection important in breeding?
3. What points shall I consider in selecting fowls for my breeding pen?
4. Do I know the characteristics of the breed and variety I have chosen?
5. Why is vigor and a strong constitution important in all breeds?
6. Why should the male bird be given special attention?
7. What do I know about trap nesting and its value in the improvement of fowls?
8. What is the best age for breeding fowls?

IX. How may I secure a good hatch of chicks?

1. What factors will determine the time for hatching?
2. Why is the condition of the breeding fowls important in connection with producing eggs for hatching?
3. Why should I give special care to eggs intended for hatching?
4. What may be accomplished by proper selection of eggs intended for hatching?
5. Shall I use an incubator or hatch with hens?
6. Do I know from experience that I can manage an incubator successfully?
7. Can I afford to risk my best eggs while I am learning to operate an incubator?
8. How shall I manage sitting hens to secure the best results?

X. How may I raise the chicks successfully?

1. Shall I use a brooder or depend upon hens?
2. Shall I buy a brooder or attempt to make one myself?
3. What needs of little chicks require special attention?
4. What system of brooding meets these requirements and fits my needs best?
5. Do I understand the details of brooder management?
6. Do I understand the details of management of hen and chicks?
7. Can I make a suitable brood coop, drinking fountains, and other equipment needed?

X. How may I raise the chicks successfully?—Contd.

8. Have I provided properly for the prevention of pests and disease?
9. What shall be my method of feeding and managing the chicks after weaning?
10. Do I have a good ration for growing chicks?

XI. How may eggs for the market be produced at a profit?

1. What is the effect of the age of the hens on the profits of egg production?
2. Should male birds be allowed in the flock if the eggs are intended for market?
3. What are suitable rations for egg production in this section?
4. How is green food and animal food to be provided throughout the year?
5. How shall I provide a supply of clean, fresh water, grit, oyster shell, and charcoal?
6. How is exercise to be provided?
7. Will they be housed comfortably throughout the year and have an abundant supply of fresh air?
8. What precautions must be made for protection from pests and disease?
9. How often should the eggs be gathered?
10. How shall the eggs be kept clean?
11. Will it prove profitable to grade the eggs and work toward a special market?

XII. How may I market my fowls at a profit?

1. Shall I market my surplus males as broilers or as roasters?
2. At what age should the cockerels and pullets be separated?
3. What is the best method of preparing broilers for the market?
4. At what age shall I sell my hens?
5. What is the best ration for fattening roasters?
6. Will it pay me to practice crate fattening?
7. Is there a profitable market for capons?
8. Can I caponize a cockerel successfully?
9. What methods of killing and dressing shall I use?
10. Can I build up a private trade for dressed poultry?

DEPARTMENT PUBLICATIONS PERTAINING TO POULTRY HUSBANDRY.

FARMERS' BULLETINS.

51. Standard Varieties of Chickens.
200. Turkeys.
234. The Guinea Fowl.
287. Poultry Management.
355. A Successful Poultry and Dairy Farm.
445. Marketing Eggs Through the Creamery.
452. Capons and Caponizing.
528. Hints to Poultry Raisers.
530. Important Poultry Diseases.
562. The Organization of Boys' and Girls' Poultry Clubs.

574. Poultry House Construction.
585. Natural and Artificial Incubation of Hens' Eggs.
594. Shipping Eggs by Parcel Post.
624. Natural and Artificial Brooding of Chickens.
656. The Community Egg Circle.
682. A Simple Trap Nest for Poultry.
684. Squab Raising.
697. Duck Raising.
767. Goose Raising.



## ILLUSTRATED LECTURES ON AGRICULTURAL TOPICS.

The value of using the stereopticon with sets of good lantern slides in visualizing certain lessons in agriculture has been frequently emphasized. Although the lecture method is not to be recommended as a general practice in teaching secondary students, illustrated lectures now and then will do much to maintain interest. This division is working toward improving the sets of slides which it loans to teachers of agriculture. Sets of slides with accompanying syllabi upon a wide range of agricultural topics are also supplied by the division of Farmers' Institutes of the States Relations Service. Although these sets of slides may be used to good advantage in the classroom they will prove especially valuable in giving lectures to farmers of the community as a phase of local extension work. Brief descriptions of the more recent syllabi follow:

*Syllabus 18—Illustrated Lecture on the Production of Clean Milk.*—This lecture is to accompany a set of 49 lantern slides. It aims to make clear what is meant by clean milk, to show the nature of the bacteria, and the sources of milk contamination. The importance of clean milk to both consumer and producer and the cost of such milk is portrayed. As the lecture is intended chiefly for the producer the question of how to produce clean milk is discussed in detail.

*Syllabus 19—Illustrated Lecture on How to Make Good Farm Butter.*—The lecture with its set of 51 slides should prove of interest to both men and women in dairy sections in the southern States only. It does not apply to the northern States. It may follow the preceding lecture to advantage.

*Syllabus 20—Illustrated Lecture on the Production of Alfalfa East of the Ninety-fifth Meridian.*—Teachers who are endeavoring to help the people of the community in getting a start with alfalfa will be able to make good use of this lecture as it illustrates the process step by step with 51 lantern slides.

*Syllabus 21—Illustrated Lecture on Corn Production.*—This lecture will prove of special value in connection with home-project work in corn production. The various steps essential in producing corn are illustrated with a series of 52 lantern slides.

*Syllabus 22—Illustrated Lecture on Cattle-Tick Eradication.*—A number of secondary schools in the South are doing effective demonstration work in connection with tick eradication. This lecture will prove helpful in arousing interest and imparting accurate knowledge in regard to tick control. It is illustrated with a set of 50 slides.

*Syllabus 23—Illustrated Lecture on Orchard Management.*—In this lecture directions are given for selecting the site for and planting the orchard, soil management, pruning, thinning, rejuvenation, spraying, protection from rodents, injurious insects and diseases. As it is well illustrated with 50 slides it should aid in arousing interest in the home orchard as well as in commercial fruit growing.